



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,329	04/25/2007	Gavin David Cowie	C64-8285	4677

7590 05/24/2010
Richard S Wesorick
Tarolli Sundheim Covell & Tummino
1300 East Ninth Street, Suite 1700
Cleveland, OH 44114

EXAMINER

BUCK, MATTHEW R

ART UNIT	PAPER NUMBER
----------	--------------

3671

MAIL DATE	DELIVERY MODE
-----------	---------------

05/24/2010

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/587,329	Applicant(s) COWIE ET AL.	
	Examiner MATTHEW R. BUCK	Art Unit 3671	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 February 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,4-6,9-18,27-33,36 and 38-41 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,4-6,9-18,27-33,36 and 38-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claims 5 and 14 are objected to because of the following informalities: (claim 5, line 2) "product" should be changed to "production"; (claim 14, line 10) "bar" should be changed to "shaft". Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 29 and 30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 29 and 30 state at least one moveable guide shaft, whereas claim 1 states at least two moveable guide shafts.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1, 4, 5, 29, 30 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winegeart (4519576), in view of Bonetti (5324008), and further in view of Simpson (2002/0007950).
6. As concerns claims 1, 29, 30 and 36, Winegeart shows a suspension valve housing (H), said valve housing having a production bore (16); a valve element (20)

Art Unit: 3671

disposed in said suspension valve housing; said valve being remotely actuatable between an open position and a closed position (column 3, lines 30-33); actuation means coupled to the ball element for permitting remote actuation of the ball element, said actuation means comprising at least two moveable guide shafts (54) disposed substantially parallel to the production bore, an actuation bar (26) coupled between the respective guide shafts and to the apertured ball element, the actuation bars being coupled to the ball element by rotatable pin joints (24), and being slidingly (28) located in respective bar pocket (32) of said guide shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidingly located in respective bar pockets of said ball element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidingly located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. Winegeart lacks to show the valve element being an apertured ball valve element with a valve bore offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin; and the production bore being offset from the centre of the valve housing. However, Bonetti teaches wherein the valve element being an apertured ball valve element (8)

Art Unit: 3671

with a valve bore (9) offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin (Fig. 2a-2c). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart with the elements taught in Bonetti because an offset ball valve bore is known to provide means for increasing the strength of one side of the valve body, which it allows the system to with stand a higher pressure differential. Simpson teaches the production bore (14) being offset (paragraph 0024; Fig. 2) from the centre of the valve housing (12). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart and Bonetti with the elements taught in Simpson because an offset production bore is known to provide means for allowing additional room in the housing for the valve and actuation components. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve design.

7. As concerns claim 4, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use a flapper valve since examiner takes Official Notice of the equivalence of a flapper valve and a ball valve for their use in the art and the selection of any of these known equivalents would be within the level of ordinary skill in the art.

8. As concerns claim 5, the combination shows wherein the an offset bore valve seat (Simpson: 16, 17) is disposed in said product bore for engaging with said ball

Art Unit: 3671

element, one side of the valve seat having a relatively thick portion and the other side of the valve seat having a relatively thin portion.

9. Claims 6, 9-12 and 31-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Winegeart, Bonetti and Simpson as applied to claim 1 above, and further in view of Garcia-Soule et al. (5884703).

10. As concerns claim 6, Winegeart, Bonetti and Simpson lack to show wherein an inclined groove is disposed in said production bore for receiving an elastomeric seal with the lowest part of the groove being disposed adjacent to the thinnest part of the valve seat to minimize the length of seat exposed to differential pressure. However, Garcia-Soule teaches wherein an inclined groove is disposed in said production bore for receiving a seal with the lowest part of the groove being disposed adjacent to the thinnest part of the valve seat to minimize the length of seat exposed to differential pressure (column 8, lines 52+). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart, Bonetti and Simpson with the elements taught in Garcia-Soule et al. because a seal is known to provide means for sealing around a ball valve since as set forth by the Supreme Court in the KSR decision, use of known techniques to improve similar devices in the same way is known.

11. As concerns claim 9, Winegeart, Bonetti and Simpson lack to show wherein said valve element may be actuated to remain in an open position, said system including ram means for moving between a first non-engaged position wherein said valve element

Art Unit: 3671

remains normally open and a second engaged position where the valve is set in the open position. However, Garcia-Soule teaches wherein said valve element (20) may be actuated to remain in an open position, said system including ram means (30, 32) for moving between a first non-engaged position wherein said valve element remains normally open and a second engaged position where the valve is set in the open position (column 9, lines 5+). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart, Bonetti and Simpson with the elements taught in Garcia-Soule et al. because ram means is known to provide means for actuating a valve element between an open and closed position, since as set forth by the Supreme Court in the KSR decision, use of known techniques to improve similar devices in the same way is known.

12. As concerns claims 10-12, Winegeart, Bonetti and Simpson lack to show wherein said ram means has locking mandrel means for engaging with a locking nipple and said mandrel means being actuatable by the ram means to move the locking nipple from a first unlocked position to a second locked position, such that when the nipple is in said second locked position the ball element is locked in the open position; wherein the nipple is normally retained to the housing by means of a shear pin; and wherein the nipple has two legs, one leg being coupled to each of said guide shafts so that as said mandrel and ram move to engage and move the nipple towards said ball element, the nipple movement causes the guide shafts to rotate and move the ball element to a fully open position. However, Garcia-Soule teaches wherein said ram means has locking mandrel means (84) for engaging with a locking nipple (96, 70) and said mandrel means

Art Unit: 3671

being actuatable by the ram means to move the locking nipple from a first unlocked position to a second locked position, such that when the nipple is in said second locked position the ball element is locked in the open position (column 14, lines 14+); wherein the nipple is normally retained to the housing by means of a pin (68); and wherein the nipple has two legs, one leg being coupled to each of said ram means so that as said mandrel and ram move to engage and move the nipple towards said ball element, the nipple movement causes the ram means to rotate and move the ball element to a fully open position (Fig. 15). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use a shear pin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart, Bonetti and Simpson with the elements taught in Garcia-Soule et al. for the reasons stated above.

13. As concerns claims 31 and 32, Winegeart, Bonetti and Simpson lack to show wherein said valve element is actuated to remain in the open position, said system including an override plug dimensionable to pass through an annulus bore and for engaging with the top of said actuation means, said override plug being responsive to pressure to force said actuation means downward to a lowermost position in an actuation bore whereby in said lowermost position the ball valve element is actuated to

Art Unit: 3671

a fully open position, said, plug having locking means for engaging with said annulus bore when in said fully open position so that the annulus bore and the production bore are open; and wherein said override plug has an upper tubular housing, a lower plug pin coupled to the upper tubular housing by a shear pin, spring-loaded arms for locking the plug to the annulus bore when said production ball valve element is in the fully open position, and a retaining ring for retaining the spring-loaded arms when in an unlocked position, said retaining ring being releaseable by said lower plug pin when said override plug is in the locking position. However, Garcia-Soule teaches wherein said valve element (20) is actuated to remain in the open position, said system including an override plug (96, 70) and for engaging with the top of said actuation means (30, 32), said override plug being responsive to pressure to force said actuation means downward to a lowermost position in an actuation bore whereby in said lowermost position the ball valve element is actuated to a fully open position, said, plug having locking means for engaging with said annulus bore when in said fully open position so that the annulus bore and the production bore are open (column 14, lines 41+); and wherein said override plug has an upper tubular housing, a lower plug pin (68) coupled to the upper tubular housing, spring-loaded arms for locking the plug to the annulus bore when said production ball valve element is in the fully open position, and a retaining ring (62) for retaining the spring-loaded arms when in an unlocked position, said retaining ring being releaseable by said lower plug pin when said override plug is in the locking position. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart, Bonetti and

Art Unit: 3671

Simpson with the elements taught in Garcia-Soule et al. for the reasons stated above.

Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve system design.

14. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Winegeart, Bonetti and Simpson as applied to claims 1 above, and further in view of Edwards (5884706).

15. As concerns claim 13, Winegeart, Bonetti and Simpson lacks to show wherein said ball is allowed to float upwards when in said closed position to maintain a contact force between the valve seat and ball surface in proportion to the prevailing differential pressure, by providing trunnions with two arcuated portions and a rebate in each trunnion bore bearing for receiving said arcuate portion when the ball is in the closed position. However, Edwards teaches wherein said ball (18) is allowed to float upwards when in said closed position to maintain a contact force between the valve seat and ball surface in proportion to the prevailing differential pressure, by providing trunnions with two arcuated portions (26, 28) and a rebate in each trunnion bore bearing for receiving said arcuate portion when the ball is in the closed position. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Winegeart, Bonetti and Simpson with the elements taught in Edwards because this feature is known to provide means for sealing around a ball valve since as set forth by the Supreme Court in the KSR decision, use of known techniques to

Art Unit: 3671

improve similar devices in the same way is known. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve system design.

16. Claims 14, 16 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garnham et al. (5992527), in view of Winegeart, and further in view of Simpson.

17. As concerns claim 14, Garnham shows providing a dual bore tubing hanger (10, 6) having a production bore (11, 8) and an annulus bore (12, 9), disposing a remotely operable valve (13A, 13B) in said production bore, and actuating the valve remotely between an open and a closed position (column 2, lines 11+; column 3, lines 45+).

Garnham lacks to show the production bore being offset from the centre of the valve housing, actuating a guide shaft to move rectilinearly in the direction of the production bore, coupling slidable actuating bars between the guide shaft and the apertured ball valve element so that said valve element is rotatable as said guide bar moves rectilinearly. However, Winegeart teaches actuating a guide shaft (54) to move rectilinearly in the direction of the production bore (16), coupling a slidable (28) actuating bar (26) between the guide shaft and the apertured ball valve element (20) so that said valve element is rotatable as said guide shaft moves rectilinearly. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. One of ordinary skill in the

Art Unit: 3671

art at the time the invention was made would have been motivated to modify the structure taught in Garnham with the elements taught in Winegeart because a guide shaft is known to provide means for actuating a ball valve. Simpson teaches the production bore (14) being offset (paragraph 0024; Fig. 2) from the centre of the valve housing (12). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham and Winegeart with the elements taught in Simpson because an offset production bore is known to provide means for allowing additional room in the housing for the valve and actuation components. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve design.

18. As concerns claim 16, the combination shows wherein said valve (Winegeart: 20) is actuated by translating linear movement (Winegeart: 54) to rotational movement (Winegeart: 26, 24).

19. As concerns claim 17, the combination shows wherein the transitional movement is achieved by providing an actuating bar (Winegeart: 26) coupled between the rotatable ball element (Winegeart: 20) and rectilinearly moveable guide shafts (Winegeart: 54), the actuating bars being rotatably coupled to the ball element by pin joints (Winegeart: 24) and being slideably (Winegeart: 28) moveable in pocket (32) of the guide shaft. It would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidingly located in respective bar pockets of said ball

Art Unit: 3671

element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidingly located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art.

20. Claims 15, 18 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garnham et al., Winegeart and Simpson, and further in view of Garcia-Soule et al.

21. As concerns claim 15, Garnham et al., Winegeart and Simpson lack to show actuating the valve to a fully locked open position. However, Garcia-Soule teaches actuating the valve to a fully locked open position (column 14, lines 41+). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham et al., Winegeart and Simpson with the elements taught in Garcia-Soule et al. because ram means is known to provide means for actuating a valve element between an open and closed position, since as set forth by the Supreme Court in the KSR decision, use of known techniques to improve similar devices in the same way is known. Therefore, the invention as a whole would have been prima facie obvious to one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve design.

22. As concerns claim 18, Garnham et al., Winegeart and Simpson lack to show wherein said ram means has locking mandrel means for engaging with a locking nipple and said mandrel means being actuatable by the ram means to move the locking nipple

Art Unit: 3671

from a first unlocked position to a second locked position, such that when the nipple is in said second locked position the ball element is locked in the open position; wherein the nipple is normally retained to the housing by means of a shear pin; and wherein the nipple has two legs, one leg being coupled to each of said guide shafts so that as said mandrel and ram move to engage and move the nipple towards said ball element, the nipple movement causes the guide shafts to rotate and move the ball element to a fully open position. However, Garcia-Soule teaches wherein said ram means has locking mandrel means (84) for engaging with a locking nipple (96, 70) and said mandrel means being actuatable by the ram means to move the locking nipple from a first unlocked position to a second locked position, such that when the nipple is in said second locked position the ball element is locked in the open position (column 14, lines 14+); wherein the nipple is normally retained to the housing by means of a pin (68); and wherein the nipple has two legs, one leg being coupled to each of said ram means so that as said mandrel and ram move to engage and move the nipple towards said ball element, the nipple movement causes the ram means to rotate and move the ball element to a fully open position (Fig. 15). It would have been obvious to one having ordinary skill in the art at the time of the invention was made to use a shear pin, since it has been held to be within the general skill of a worker in the art to select a known material on the basis of its suitability for the intended use as a matter of obvious design choice. It is also common knowledge to choose a material that has sufficient strength, durability, flexibility, hardness, etc. for the application and intended use of that material. One of ordinary skill in the art at the time the invention was made would have been motivated

Art Unit: 3671

to modify the structure taught in Garnham et al., Winegeart and Simpson with the elements taught in Garcia-Soule et al. for the reasons stated above.

23. As concerns claim 33, Garnham et al., Winegeart and Simpson lack to show wherein said valve element is actuated to remain in the open position, said system including an override plug dimensionable to pass through an annulus bore and for engaging with the top of said actuation means, said override plug being responsive to pressure to force said actuation means downward to a lowermost position in an actuation bore whereby in said lowermost position the ball valve element is actuated to a fully open position, said, plug having locking means for engaging with said annulus bore when in said fully open position so that the annulus bore and the production bore are open; and wherein said override plug has an upper tubular housing, a lower plug pin coupled to the upper tubular housing by a shear pin, spring-loaded arms for locking the plug to the annulus bore when said production ball valve element is in the fully open position, and a retaining ring for retaining the spring-loaded arms when in an unlocked position, said retaining ring being releaseable by said lower plug pin when said override plus is in the locking position. However, Garcia-Soule teaches wherein said valve element (20) is actuated to remain in the open position, said system including an override plug (96, 70) and for engaging with the top of said actuation means (30, 32), said override plug being responsive to pressure to force said actuation means downward to a lowermost position in an actuation bore whereby in said lowermost position the ball valve element is actuated to a fully open position, said, plug having locking means for engaging with said annulus bore when in said fully open position so

Art Unit: 3671

that the annulus bore and the production bore are open (column 14, lines 41+); and wherein said override plug has an upper tubular housing, a lower plug pin (68) coupled to the upper tubular housing, spring-loaded arms for locking the plug to the annulus bore when said production ball valve element is in the fully open position, and a retaining ring (62) for retaining the spring-loaded arms when in an unlocked position, said retaining ring being releaseable by said lower plug pin when said override plug is in the locking position. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham et al., Winegeart and Simpson with the elements taught in Garcia-Soule et al. for the reasons stated above.

24. Claims 27, 28 and 38-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Garnham et al., Winegeart and Simpson, and further in view of Bonetti.

25. As concerns claim 27, Garnham shows a subsea installation tree (20, 10) incorporating a suspension valve (13A, 13B) as claimed in claim 1.

26. As concerns claim 28, Garnham shows a tubing hanger (10, 6) for use with a hybrid tree insert, said tubing hanger having a completion suspension valve (13A, 13B) as claimed in claim 1.

27. As concerns claims 38-41, Garnham shows a valve housing (10), said valve housing having a production bore (11) and an annulus bore (12); a production bore valve element (13A, 13B) disposed in said valve housing and an annulus bore valve

Art Unit: 3671

element (15) disposed in said valve housing; said valves being remotely actuatable in said housing between an open position and a closed position (column 2, lines 11+; column 3, lines 45+). Garnham lacks to show the production bore valve element being an apertured ball valve element with a valve bore offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin; the production bore being offset from the centre of the valve housing; and actuation means coupled to the ball element for permitting remote actuation of the ball element, said means comprising at least two moveable guide shafts disposed substantially parallel to the production bore, at least two actuation bars coupled between the guide shafts and to the apertured ball element, the actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidingly located in respective bar pockets of said ball element. However, Winegeart teaches actuation means coupled to the ball element for permitting remote actuation of the ball element, said actuation means comprising at least two moveable guide shafts (54) disposed substantially parallel to the production bore, an actuation bar (26) coupled between the respective guide shafts and to the apertured ball element, the actuation bars being coupled to the ball element by rotatable pin joints (24), and being slidingly (28) located in respective bar pocket (32) of said guide shaft. It would have been obvious to one of ordinary skill in the art at the time the invention was made to have at least two actuation bars, since it has been held that mere duplication of the essential working parts of a device involves only routine skilled the art. It also would have been obvious to one having ordinary skill in the art at the time of the invention was made to have the

Art Unit: 3671

actuation bars being coupled to the guide shafts by rotatable pin joints, and being slidably located in respective bar pockets of said ball element instead of having the actuation bars being coupled to the ball element by rotatable pin joints, and being slidably located in respective bar pocket of said guide shaft, since it has been held that a mere reversal of the essential working parts of a device involves only routine skill in the art. One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham with the elements taught in Winegeart because a guide shaft is known to provide means for actuating a ball valve. Simpson teaches the production bore (14) being offset (paragraph 0024; Fig. 2) from the centre of the valve housing (12). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham and Winegeart with the elements taught in Simpson because an offset production bore is known to provide means for allowing additional room in the housing for the valve and actuation components. Bonetti teaches wherein the valve element being an apertured ball valve element (8) with a valve bore (9) offset from the centre of the ball, so that one portion of the ball element is relatively thick and another portion of the valve element is relatively thin (Fig. 2a-2c). One of ordinary skill in the art at the time the invention was made would have been motivated to modify the structure taught in Garnham et al., Winegeart and Simpson with the elements taught in Bonetti because an offset ball valve bore is known to provide means for increasing the strength of one side of the valve body, which it allows the system to with stand a higher pressure differential. Therefore, the invention as a whole would have been prima facie obvious to

Art Unit: 3671

one of ordinary skill in the art at the time the invention was made since the expected result of this configuration improves efficiency of the valve design.

Response to Arguments

28. Applicant's arguments with respect to claims 1, 4-6, 9-18, 27-33, 36 and 38-41 have been considered but are moot in view of the new ground(s) of rejection.

Applicant's arguments regarding Garnham, Garcia-Soule, and Edwards are noted, but the elements are shown above in the rejection.

Conclusion

29. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MATTHEW R. BUCK whose telephone number is (571) 270-3653. The examiner can normally be reached on Monday through Friday 7:30am - 5:00pm E.S.T..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Will can be reached on (571) 272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 3671

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Thomas A Beach/
Primary Examiner, Art Unit 3671

/Matthew R Buck/
Examiner, Art Unit 3671